

phosphate backbone modification on the 3' side of the nucleic acid.

SUB C3 47. The method of claim 42, wherein the phosphate backbone modification occurs at the 3' end of the nucleic acid.

6 48. The method of claim 42, wherein X_1X_2 are nucleotides selected from the group consisting of: GpT, GpG, GpA, ApA, ApT, ApG, CpT, CpA, CpG, TpA, TpT, and TpG; and X_3X_4 are nucleotides selected from the group consisting of: TpT, CpT, ApT, TpG, ApG, CpG, TpC, ApC, CpC, TpA, ApA, and CpA.

7 49. The method of claim 42, wherein X_1X_2 are GpA and X_3X_4 are TpT.

8 50. The method of claim 42, wherein X_1 and X_2 are purines and X_3 and X_4 are pyrimidines.

9 51. The method of claim 42, wherein X_1X_2 are GpA and X_3 and X_4 are pyrimidines.

10 52. The method of claim 42, wherein the immunostimulatory nucleic acid is 8 to 40 nucleotides in length.

11 53. The method of claim 42, wherein the immunostimulatory nucleic acid is an isolated immunostimulatory nucleic acid.

54. The method of claim 42, wherein the immunostimulatory nucleic acid is a synthetic immunostimulatory nucleic acid.

SUB C4 55. The method of claim 42, wherein the immunostimulatory nucleic acid, has a sequence including at least the following formula:



wherein X_1 , X_2 , X_3 , and X_4 are nucleotides and N is a nucleic acid sequence composed of from about 2-25 nucleotides.

immunostimulatory nucleic acid, having a sequence including at least the following formula:



wherein C and G are unmethylated, wherein $X_1 X_2$ and $X_3 X_4$ are nucleotides, wherein at least one nucleotide has a phosphate backbone modification.

61. The method of claim 25, wherein the immunostimulatory nucleic acid is administered prior to exposure of the subject to an allergen.

62. The method of claim 25, wherein the allergic reaction is due to an allergic condition selected from the group consisting of eczema, allergic rhinitis, allergic coryza, hay fever, bronchial asthma, urticaria, food allergy, and atopic conditions.

63. The method of claim 60, wherein the immunostimulatory nucleic acid, has a sequence including at least the following formula:



wherein X_1 , X_2 , X_3 , and X_4 are nucleotides and N is a nucleic acid sequence composed of from about 2-25 nucleotides.

64. The method of claim 60, wherein the 5' $X_1 X_2 CGX_3 X_4 3'$ sequence is a non-palindromic sequence.

65. The method of claim 60, wherein the nucleic acid has 8 to 100 nucleotides.

~~66. The method of claim 60, wherein the nucleic acid backbone includes the phosphate backbone modification on the 5' side of the nucleic acid.~~

67. The method of claim 60, wherein the nucleic acid backbone includes the phosphate backbone modification on the 3' side of the nucleic acid.

68. The method of claim 60, wherein the phosphate backbone modification occurs at the 3' end of the nucleic acid.

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SUB
C5

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~~69~~ The method of claim ²⁰~~60~~, wherein X_1X_2 are nucleotides selected from the group consisting of: GpT, GpG, GpA, ApA, ApT, ApG, CpT, CpA, CpG, TpA, TpT, and TpG; and X_3X_4 are nucleotides selected from the group consisting of: TpT, CpT, ApT, TpG, ApG, CpG, TpC, ApC, CpC, TpA, ApA, and CpA.

²⁹
~~70~~ The method of claim ²⁰~~60~~, wherein X_1X_2 are GpA and X_3X_4 are TpT.

Sub B3
~~71. The method of claim 60, wherein X_1 and X_2 are purines and X_3 and X_4 are pyrimidines.~~

³⁰
~~72~~ The method of claim ²⁰~~60~~, wherein X_1X_2 are GpA and X_3 and X_4 are pyrimidines.

³¹
~~73~~ The method of claim ²⁰~~60~~, wherein the immunostimulatory nucleic acid is 8 to 40 nucleotides in length.

³²
~~74~~ The method of claim ²⁰~~60~~, wherein the immunostimulatory nucleic acid is an isolated immunostimulatory nucleic acid.

³³
~~75~~ The method of claim ²⁰~~60~~, wherein the immunostimulatory nucleic acid is a synthetic immunostimulatory nucleic acid.

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~~76~~ The method of claim ²⁰~~60~~, further comprising administering an allergen to the subject.

Sub E2
~~77. The method of claim 60, further comprising administering a conventional adjuvant.~~

³⁶
~~78~~ The method of claim ²⁰~~60~~, wherein the immunostimulatory nucleic acid, has a sequence including at least the following nucleotides TCCATGACGTTCTGACGTT (SEQ ID NO. 10).

Sub D
~~79. The method of claim 60, wherein the immunostimulatory nucleic acid, has a~~

sequence selected from the group of sequences including at least the following nucleotides
TCCATGTCGCTCCTGATGCT (SEQ ID No. ____), TCCATAACGTTTCCTGATGCT
(SEQ ID No. ____), TCCATGACGATCCTGATGCT (SEQ ID No. ____),
TCCATAACGTCCCTGATGCT (SEQ ID No. ____), TCCATGTCGTTTCCTGATGCT
(SEQ ID No. ____), TCGTCGTTTTGTCGTTTTGTCGTT (SEQ ID No. ____),
TCGTCGTTGTCGTTGTCGTT (SEQ ID No. ____), TCCATGACGGTCCTGATGCT
(SEQ ID No. ____), TCCATGACGCTCCTGATGCT (SEQ ID No. ____),
TCCATGACGTTTCCTGATGCT (SEQ ID No. ____), TCCATCACGTGCCTGATGCT
(SEQ ID No. ____), TCGTCGTTGTCGTTTTGTCGTT (SEQ ID No. ____),
GCGTGCGTTGTCGTTGTCGTT (SEQ ID No. ____), TGTCGTTTGTCGTTTGTCGTT
(SEQ ID No. ____), TGTCGTTGTCGTTGTCGTT (SEQ ID No. ____),
TCGTCGTCGTCGTT (SEQ ID No. ____), TCCTGTCGTTTCCTTGTCGTT (SEQ ID No. ____),
TCCTGTCGTTTTTTGTCGTT (SEQ ID No. ____),
TCGTCGCTGTCTGCCCTTCTT (SEQ ID No. ____), TCGTCGCTGTTGTCGTTTCTT
(SEQ ID No. ____), and TCGTCGTTTTGTCGTTTTGTCGTT (SEQ ID No. ____).

80. The method of claim 60, wherein the immunostimulatory nucleic acid, has a sequence including at least the following nucleotides TCCATGTCGCTCCTGATGCT (SEQ ID No. ____).

81. The method of claim 60, wherein the immunostimulatory nucleic acid, has a sequence including at least the following nucleotides TCGTCGTTTTGTCGTTTTGTCGTT (SEQ ID No. ____).

82. A method for treating asthma in a subject, comprising administering to an asthmatic subject an effective amount for treating asthma in a subject of an immunostimulatory nucleic acid, wherein the immunostimulatory nucleic acid, has a sequence selected from the group of sequences including at least the following nucleotides

TCCATGGCGGTCCTGATGCT (SEQ ID No. ____), TCCATGTCGGTCCTGATGCT (SEQ ID No. ____), and GGGGTCAACGTTGAGGGGGG (SEQ ID No. ____).